October 12,1949.

Dr. Carl F. Robinow,
Dept. Bacteriology,
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Montreal, Canada.

Dear Robinow:

Please accept my apologies for not having written to you seoner, but it has been only in the last few weeks that we have really been able to get underway with our cytological work. I have a Miss Ethelyn Lively here as a graduate student, who had the opportunity of assisting Dr. Delaporte at Cold Spring Harbor for a time. She has been using the HCl- Giemsa technique according to your directions with very successful results. It is too soon so far to be sure of our interpretations, but our attempts to discriminate cytologically between haploid and diploid cells have given very encouraging results so far. Aside from possible, but rather tenuous size differences, the diploid cells may be characterized by having nuclear aggregates which consist of 3 or 4 or more smaller granules, rather than the single or dumbbell configuration most typical of the haploid cells. I should be interested to know whether you have encountered this kind of difference under any environmental differences, in your examinations of E. coli.

Our major difficulty, it seems to me, is in interpreting the chromatic bodies as nuclei or chromosomes or ~~what~~? The most direct approach, it seems to me, might be to find conditions, under which the bacterial cell is reduced to its minimal nuclear condition, which, for haploid E. coli seems to be the uninucleate state. I am, however, a little suspicious of most of the uninucleate cells seen in growing cultures, because the nucleus seems to be a little larger therein, and may simply be a coalescence of aggregation in the center of the cell of the two or more nuclei seen in the other cells. Do you have any notions on cultural procedures which may shift the bacterial population towards the "uninucleate" condition?,Such procedure, applied to the diploid, might help to decide whether the aggregates are of nuclei or of constituent chromosomes.

Diagrammatically, the difference (which may or may not be real) between the haploids and diploids seems to be:

Yours sincerely,